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Patent  
Attorney's Docket No. 030681-292

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of ) **BOX AF**  
Kwan-sun PARK et al. )  
Application No.: 09/825,937 ) Group Art Unit: 2871  
Filed: April 5, 2001 ) Examiner: P. Akkapeddi  
For: LIQUID CRYSTAL DISPLAY ) Confirmation No.: 3806  
DEVICE )

**AMENDMENT/REPLY TRANSMITTAL LETTER**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Enclosed is a reply for the above-identified patent application.

[ ] A Petition for Extension of Time is also enclosed.

[ ] A Terminal Disclaimer and the [ ] \$55.00 (2814) [ ] \$110.00 (1814) fee due under 37 C.F.R. § 1.20(d) are also enclosed.

[ ] Also enclosed is/are \_\_\_\_\_.

[ ] Small entity status is hereby claimed.

[ ] Applicant(s) requests continued examination under 37 C.F.R. § 1.114 and enclose the [ ] \$385.00 (2801) [ ] \$770.00 (1801) fee due under 37 C.F.R. § 1.17(e).

[ ] Applicant(s) requests that any previously unentered after final amendments ~~not be~~ entered. Continued examination is requested based on the enclosed documents identified above.

[ ] Applicant(s) previously submitted \_\_\_, on \_\_\_, for which continued examination is requested.

[ ] Applicant(s) requests suspension of action by the Office until at least \_\_\_ which does not exceed three months from the filing of this RCE, in accordance with 37 C.F.R. § 1.103(c). The required fee under 37 C.F.R. § 1.17(i) is enclosed.

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A Request for Entry and Consideration of Submission under 37 C.F.R. § 1.129(a) (1809/2809) is also enclosed.

No additional claim fee is required.

An additional claim fee is required, and is calculated as shown below:

AMENDED CLAIMS					
	NO. OF CLAIMS	HIGHEST NO. OF CLAIMS PREVIOUSLY PAID FOR	EXTRA CLAIMS	RATE	ADD'L FEE
Total Claims		MINUS =		× \$18.00 (1202) =	
Independent Claims		MINUS =		× \$86.00 (1201) =	
If Amendment adds multiple dependent claims, add \$290.00 (1203)					
Total Claim Amendment Fee					
If small entity status is claimed, subtract 50% of Total Claim Amendment Fee					
<b>TOTAL ADDITIONAL CLAIM FEE DUE FOR THIS AMENDMENT</b>					

A check in the amount of \$ \_\_\_\_\_ is enclosed for the fee due.

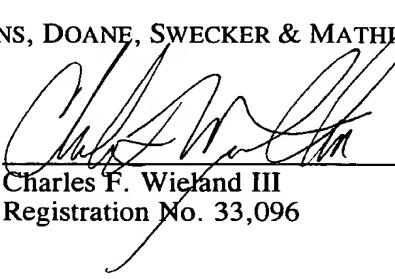
Charge \$ \_\_\_\_\_ to Deposit Account No. 02-4800.

The Director is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17, 1.20(d) and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800. This paper is submitted in duplicate.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: November 20, 2003

By:   
Charles F. Wieland III  
Registration No. 33,096

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For: LIQUID CRYSTAL DISPLAY ) Confirmation No.: 3806  
DEVICE )

**REQUEST FOR RECONSIDERATION**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

Applicants respectfully request reconsideration of the above-captioned application.

Claims 1-11 are pending.

The Office Action of August 27, 2003, includes an objection to the drawings suggesting that the drawings do not show the recitation of pixel electrodes corresponding to the common electrodes and thin film transistors for driving the pixel electrodes installed on the inner surface of the front and rear plate. Applicants respectfully point out that the Office has not focused on the entirety of the recitation of claim 1, lines 2-6. There are three different elements in this recitation. First, the liquid crystal panel is disclosed as having a front plate and a rear plate between which liquid crystal is interposed. There are three electrodes. The first electrode is the common electrode for driving the liquid crystal as shown, for example, in Figure 4 as common electrode 103. These common electrodes drive the liquid crystal in a pixel-by-pixel basis. The common electrode is on the inner

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surface of the *front* plate. Next are pixel electrodes corresponding to the common electrodes as identified in the exemplary embodiment of Figure 4 as pixel electrodes 105 on the *rear* plate. Additionally, there are thin film transistors, shown in the exemplary embodiment of Figure 4 as TFTs 106 on the *rear* plate, for driving the pixel electrodes. Hence, when viewed in its entirety, the "wherein" clause of claim 1 includes three sets of electrodes which are installed on the inner surface of the front (*e.g.*, common electrodes) and rear plates (*e.g.*, pixel electrodes and TRTs). It is respectfully submitted that the Office was simply reading a fraction of the overall clause and therefore thought it was inaccurate.

In light of the foregoing discussion, reconsideration and withdrawal of this objection is respectfully requested.

The Office Action also indicates that Applicants' arguments with respect to claims 1-11 have been considered but are moot. This comment is not understood. Typically, arguments are only moot when the grounds of rejection have shifted and new art applied. In any event, at page 6 of the Office Action, the Examiner has provided some remarks in response to Applicants' arguments. From these arguments and the other commentary accompanying the rejection, it appears to the undersigned that the Office may be misunderstanding the details of the display in the *Shirasaki et al.* patent.

Specifically, the Office Action includes a rejection of claims 1, 3 and 4 under 35 U.S.C. §103 as allegedly being unpatentable over the *Shirasaki et al.* patent (U.S. Patent No. 6,025,894) in view of the *Littman et al.* (U.S. Patent 5,588,551); a rejection of claims 5-11 under 35 U.S.C. §103 as allegedly being unpatentable over the *Shirasaki et al.* and the *Littman et al.* patent as applied to claim 1, and in further view of the *Hodson* patent

(U.S. Patent 5,760,858); and finally a rejection of claim 2 under 35 U.S.C. §103 as allegedly being unpatentable over the *Shirasaki et al.* and *Littman et al.* patents, as applied to claim 1 above, in further view of the *Nakanishi et al.* patent (U.S. Patent 5,969,832). These rejections are respectfully traversed.

In relevant part, the *Shirasaki et al.* patent discloses *inter alia* a structure very similar to that of prior art Figure 1 of the present application. Specifically, a front transparent substrate 20 bears black masks 26 and color filters 27. It also includes common electrodes 25 (not 28 as indicated in the Office Action) that are located on the interior surface of the front transparent substrate 20. A rear transparent substrate 21 creates an internal space for liquid crystal 22. On the interior face of the rear transparent substrate 21 are thin film transistors 31 and pixel electrodes 30. In this manner, the *Shirasaki et al.* patent is strikingly similar to Figure 1 of the present application.

A difference lies in the source of lighting. As explained previously, the *Shirasaki et al.* patent is designed to be self-illuminating in a dark environment so as to provide backlighting by an electro-luminescent device 12. In a bright environment, the electrode luminescent layer 18 is not turned on, but rather reflective properties of the electrodes are utilized as represented by the arrow lines y and x in Figure 1, for instance, of the *Shirasaki et al.* patent. The organic electro-luminescence device 12 is activated to be an luminescence state in dark environments and light travels through the pixel electrodes 30 through the LCD panel and thereafter through a plurality of color filters before exiting the LCD panel.

It should be noted that the color filters 27 are essential to the overall operation and object of the *Shirasaki et al.* patent. Specifically, because it operates in a reflective mode, having different colors of luminescence elements would not function to provide a color display in the reflective mode. Hence, the color filters 27 are essential to the operation and function of the *Shirasaki et al.* patent.

In marked contrast to the overall structure of either the present invention or the *Shirasaki et al.* device, the *Littman et al.* patent discloses a very different approach providing a display device. Specifically, it creates an electro-luminescent media which is comprised of media for emitting blue, green or red light upon a selective application of bias to column electrodes 120 and row electrodes 140. By this simple addressing mechanism, the electro-luminescent media in a sub-pixel represented by a crosspoint of row and column electrodes 140, 120 is said to illuminate. Three such sub-pixels make up a pixel.

It appears from the commentary accompanying the Office Action, the Office believes that the *Shirasaki et al.* electro-luminescence device is lacking in detail. It is not. There is a reflection cathode electrode 15 and an anode electrode 19 between which is a electron transport layer 16 and a hole transport layer 17. As explained at column 8, lines 48-54, luminescence material have an electro-luminescence function to absorb energy generated by the recombination of holes in electrons in accordance with an electric field which is applied to the organic electro-luminescence layer 18 to emit light.

As should be apparent, the light emitted from the electro-luminescence layer 18 is a broad spectrum. It must be in order for a certain percentage of the light to pass through

each color filter 27. Hence, the *Shurasaki et al.* patent suffers from the very defect identified by the present Applicants, i.e., that the prior art uses a broad spectrum of light and upwards of two thirds of the total light is blocked by the filters.

The Hypothetical Combination

The undersigned cannot envision a hypothetical combination of the *Shirasaki et al.* patent and the *Littman et al.* patent. Specifically, the *Shirasaki et al.* patent, because it operates in illuminating and reflective mode, requires that color filters 27 be positioned above each pixel or sub-pixel. For one to suggest that the electro-luminescence device 12 could be replaced by the *Littman et al.* device would be to ignore this fundamental precept of the *Shirasaki et al.* patent. To reiterate the *Littman et al.* patent simply involves separately actuating differently colored electro-luminescence materials to provide three sub-pixels for each pixel of light. To place this behind an individual pixel in the *Shirasaki et al.* patent would require the removal of the color filter 27 to make sense. However, this would defeat the reflective mode of the *Shirasaki et al.* patent.

Applicants respectfully submit, there is also no motivation for such an modification in any event, even if the *Shirasaki* patent did not have a reflective mode. This is clear insofar as the *Littman et al.* patent believes its structure can create an active panel without the addition of liquid crystal and the complexities of common electrodes, thin film transistors and pixel electrodes, such as suggested in the *Shirasaki et al.* patent. Hence, there is no motivation to modify the devices of the *Shirasaki et al.* or *Littman et al.* patents and in fact, there is strong motivation not to adopt the suggestion in the Office Action.

The two devices simply cannot be combined in either a physical or theoretical manner to achieve the goals of either.

The Tertiary References

The *Hodson* patent is distinguished in the background section of the present application, these comments being incorporated herein. It is noted, however, that the Office is simply suggesting that the *Hodson* patent discloses cathode and anode electrodes connected to bus lines. Even if the *Hodson* patent actually taught all of the details offered in these dependent claims, the hypothetical combination would still not overcome the deficiencies that the rejection noted with respect to the *Shirasaki et al.* patent and *Littman et al.* patent.

Similarly, the *Nakanishi et al.* patent does not provide teachings which would overcome the deficiencies of the rejection previously noted. Although Applicants appreciate the Examiner's clarification of the rejection based on the *Nakanishi et al.* patent, the fact remains that it does not provide teachings which would lead to a modification of the applied art which would meet the recitations of independent claim 1.

It is reiterated that the present invention's liquid crystal display which includes, *inter alia*, a backlight having a front panel and a rear panel wherein a plurality of R, G and B anode electrons on which fluorescent layers are located in parallel with the front panel, cathode electrodes corresponding the anode electrons are formed on the rear plate, and light emitting units for colors according to anode electrodes and cathode electrodes are

installed to provide light of each of red, green and blue colors to each pixel of the liquid crystal panel, which is recited to include a structure as shown in Figure 4, for instance.

In light of the foregoing, Applicants respectfully request reconsideration and allowance of the above-captioned application. Should any residual issues exist, the Examiner is invited to contact the undersigned at the number listed below for a full discussion thereof.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: 

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Date: November 20, 2003